SAN FRANCISCO STATE UNIVERSITY

FISCAL AFFAIRS
ENTERPRISE FUNDS, TRUST & PROJECTS ACCOUNTING

1600 Holloway Avenue
Administration Building, Room 358 C
San Francisco, CA 94132

Tel: 415/338-2436
   415/338-7138
Fax: 415/338-2461

BILLING DATE: 06/27/2013

US ENVIRONMENTAL PROTECTION AG
109 TW ALEXANDER DRIVE
DURHAM, NC 27711
ATTN: RTP FINANCE CENTR-MAIL#D143-02

FISCAL YEAR: 12
INVOICE NO.   07563821
INVOICE DATE: 06/27/2013
DUE DATE:
AUTH/REF NO:

ID: 940927000V

                            DESCRIPTION

REIMBURSEMENT FOR DELIVERABLE # 2 ON THE PROJECT " ANALYSIS OF
MANGANESE EXPOSURE"
ORDER #: EP-13-D-000146,   DUNS#: 942514985
BENEFICIARY NAME: SAN FRANCICO STATE UNIVERSITY
BENEFICIARY BANK: WELLS FARGO BANK, N.A.   WIRE ROUTING #: 121000248
BENEFICIARY ACCT #: 4944-834555, SFSU TAX ID#: 931-13-7247
BENEFICIARY BANK ADD: 550 CALIFORNIA ST. 10TH FLOOR, SF, CA 94104
THIS IS FOR " DELIVERABLE # 2 -- HAIR ANALYSIS RESULTS

CRS# - FMS CHARTFIELD	CHARGE AMOUNT	BALANCE
702769- DR:103004,40927,3080,,,40927000	19,812.00	19,812.00
702769- CR:503107,40927,3080,,,40927000		

INVOICE TOTAL: 19,812.00

MAKE MONEY ORDER OR CERTIFIED CHECK PAYABLE TO:
   **** SAN FRANCISCO STATE UNIVERSITY ****

REMIT TO: BURSAR'S OFFICE, SFSU
             1600 HOLLOWAY AVENUE - ADM 155
             SAN FRANCISCO, CA 94132

BILLING TERMS: NET 30 DAYS

TO ENSURE PROPER CREDIT, INCLUDE A COPY OF THE
INVOICE WITH YOUR PAYMENT.

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Manganese in hair samples

ID	Mn ug/gr	Weight mg
201	0.0761	39.96
202	0.8206	62.99
203	0.1161	20.68
204	0.1356	36.75
205	0.0989	20.23
206	0.4183	17.69
207	0.2106	62.68
208	0.3897	28.20
209	0.6957	16.45
210	0.2780	24.68
211	0.0659	24.42
212	0.1025	37.45
213	0.9942	108.69
215	0.1434	218.08
216	1.6242	73.65
217	1.8665	34.30
218	1.2995	24.49
219	0.0986	228.13
220	0.2649	52.25
221	0.2532	25.71
222	0.1248	41.58
223	0.9970	219.47
224	0.4738	17.94
225	0.5580	7.09
226	0.2369	48.04
227	0.4172	46.91
228	1.8369	121.82
229	1.7861	42.74
230	0.0762	43.33
231	1.0464	30.16
232	0.3591	67.69
233	3.4830	78.32
234	0.4300	30.09
235	1.0809	15.08
236	1.6384	78.77
237	0.7562	168.00
238	0.0526	37.82
240	0.1207	186.24
241	0.1554	54.95
242	0.4797	35.71
243	4.3598	10.03
244	0.5792	117.53
245	0.0451	18.60
246	0.5060	64.66
247	1.2699	88.15
248	0.0120	71.03
249	0.0235	43.84

250	0.5464	18.41
256	0.3565	98.08
257	0.1043	97.91
262	1.2458	81.77
263	0.3448	76.42
264	0.0737	86.26
265	1.7063	6.11
266	0.3309	58.59
267	0.1834	194.09
268	0.0539	75.63
269	0.3519	33.50
270	1.0727	137.08
271	1.0558	22.96
272	0.0456	65.31
273	0.3757	101.99
274	0.1118	10.99
275	0.1096	79.49
276	2.7810	53.51
277	0.4004	55.40
278	0.2880	62.36
279	0.8467	11.77
283	1.3686	53.47
285	1.9235	6.29
287	0.5352	36.77
288	1.2020	48.21
289	1.6389	30.30
290	0.2598	11.27
291	0.9596	120.94
292	1.6859	53.11
293	0.2227	99.10
294	1.6478	9.82
295	0.0971	203.52
296	0.7987	4.05
297	0.1802	58.66
299	0.4737	109.83
302	0.1681	153.11

Hair collection, washing and digestion are done via a combination of two published methods, Chen et al and Das et al. To remove external surface contamination we place the hair in a beaker containing 1% Triton-X-100, sonicate for 20 minutes, rinse with deionized water (DIW) several times, add acetone and sonicate for 10 min, rinse with DIW several times and sonicate for an additional 10 min in the DIW, rinse and dried overnight at 60°C. When dry, they are placed in a acid washed 15ml polypropylene tube and weighed. One ml of concentrated HNO_3 is added to samples weighing # 100 mg and 2.5 ml is added to samples > 100 mg. Samples are left to digest for 36 hours, or until the digestion is complete. After digestion, samples are transferred into 10ml volumetric flasks (for those # 100 mg) or 25 ml volumetric flasks (for those > 100 mg) and diluted with DIW. The final acid concentration for all samples is 10%, and calibration standards for ICP-MS-DRC work are made in 10% HNO_3.

Digested hair samples were analyzed for Mn concentration using a Perkin-Elmer Elan DRC II ICP-MS equipped with an AS 93+ autosampler. ICP-MS-DRC method for metals in hair was developed from published methods [1], with modifications and adjustments based on suggestions from Perkin Elmer application laboratory. A standard solution was used for instrument calibration. The Mn concentration of that solution was chosen to cover the expected range of metals concentrations in the hair samples: 0.2,1, and 5 ug/L. Matrix-induced interferences were corrected by selection of internal standard matched to the mass and ionization properties of the analyte. For Mn we used gallium (Ga). Stock internal standards spiking solution was prepared and added to all calibrators and samples in the same concentration, 50 ng per tube. Polyatomic interferences were suppressed with the instrument's Dynamic Reaction Cell (DRC) technology feature, utilizing ammonia as a second gas. After the instrument was calibrated, quality control samples (hair samples with known Mn concentrations obtained from the Laboratory for ICP-MS Comparison Program in Quebec) were run. Quality-control hair samples were purchased to cover the range of concentrations of metals of interest and were run each day.

1. Pruszkowski E, Neubauer K, and Thomas R. **An Overview of Clinical Applications by Inductively Coupled Plasma Mass Spectrometry**. Atomic Spectroscopy 1998;19(4):111-115.

2. Chen, KLB, Amarasiriwardena, CJ, Christiani, DC: Determination of total arsenic concentrations in nails by inductively coupled plasma mass spectrometry. Biological Trace Element Research 67:109-125, 1999.

3. Das, D, Chatterjee, A, Mandal, BK , Samanta, G, Chakraborti, D: Arsenic in ground water in six districts of West Bengal, India: the biggest arsenic calamity in the world. Analyst 120: 917-924, 1995.

Hudgens, Edward

Debbie / RTP Receiving,

Yes, I certify the services/goods specified were received. Sorry for the delay in responding to this email. I was on official travel to this study's site for a Report to the participants and the community and returned to work today. Thank you for your help,

Ed Hudgens

Edward E. Hudgens
U.S. EPA, NHEERL,
Environmental Public Health Division, Epidemiology Branch Mail Drop 58 C Research Triangle Park, NC 27711
Phone: 919-966-0642
Fax: 919-966-0655
E-mail: hudgens.edward@epa.gov

-----Original Message-----
From: rtpreceiving@epa.gov [mailto:rtpreceiving@epa.gov]
Sent: Wednesday, July 10, 2013 2:18 PM
To: Hudgens, Edward
Subject: Urgent!! Invoice Approval Required for Payment of Invoice Number 7563821--DC1: B3096312965
Importance: High

Purchase Order: EP13D000146
Invoice Number: 7563821   **see web link below
Vendor: SAN FRANCISCO STATE UNIVERSITY

RTP-FC Financial Services Branch (FSB) requests your approval (via email) for payment of this invoice. To ensure timely payment of this invoice and avoid an interest penalty (which begins to accrue if the invoice is paid after 30 days), please respond to this message with one of the following statements: "Yes, I certify the services/goods specified were received," or "No, the services/goods were not received." If the services or goods were not received or completed, disapprove the invoice and provide a brief explanation for the disapproval.

If the approval or disapproval is not received within three days, a representative from FSB will contact you again with reminder emails or telephone calls. Please provide contact information for an alternate approving official if you are out of the office. Further, the contracting officer may be contacted if there is still no response after 15 days in order to comply with the Prompt Payment Act. Note the time available to you to approve the invoice is limited. YOU DO NOT HAVE 30 DAYS TO APPROVE THE INVOICE. The approval process is just a part of the entire 30 day period for processing payment. If you have any questions, please contact our Customer Assistance at 919-541-0616. Thank you for your prompt attention to this matter!

* * GOOD AFTERNOON! This invoice is 13 days old today. SORRY, but I just got it today myself. If you need to speak with me, I'm @ 919-541-3744 until 5:30 pm. EST. Thank you, Debbie.

http://ocfosystem1.epa.gov/images/spits_images/invoices/B3096312965.pdf